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## ISSUES IN WATER QUALITY/QUANTITY PLANNING & MANAGEMENT

### I. Introduction

The objective of this paper is to clearly explain the legal mandates, planning efforts and management programs of Department of Health and Environmental Sciences (DHES) and Department of Natural Resources & Conservation (DNRC) as they relate to water quality and quantity. Out of this review will surface those problems and conflicts which have served as stumbling blocks to water quality/quantity integration to date. The identification of problems and conflicts is the first step in a process which will make recommendations on solving the identified problems.

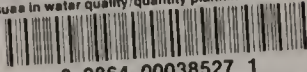
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were established by different legislation, have different objectives, divergent approaches to plan implementation and each has been developed independently of the other. The state water plan under preparation by DNRC is comprehensive in that water quality is treated as one among many issues. The water quality management plans focus on mitigating adverse water quality impacts. These divergent planning approaches can result in the type of management problems alluded to above if implemented.

## BACKGROUND

### II. A. Water Quality-Quantity - The Physical Relationship

That there is a close connection between water quality and quantity is obvious to anyone who has mixed a bourbon ditch. The more water that is available to assimilate a given pollutant, the higher the water quality will remain. While this is an obvious truth, it is also a complicated one with far reaching implications.

Geology of the drainage, diversions, uses of water, discharges and amount of flow and other factors all affect the water quality of a stream. An example may be useful to illustrate the complexity and importance of the water quality/quantity relationship. The concentration of total dissolved solids (TDS) is a measure of salinity that is often selected as a suitable indicator of overall water quality. For example, TDS levels often provide a good indication of the suitability of water for agricultural and municipal uses. During spring high flows much of the water entering the channel has had little contact with the soil and consequently has a low TDS. During low flows TDS is generally higher because the water has been in intimate contact with the soil.

Man's activities, specifically depletions and discharges, as well as seasonal cycles, influence quality/quantity. Depletions reduce the assimilative capacity of a stream. The less water there is to dilute pollutants, the smaller the pollutant load that can be added to a stream and still maintain a certain quality of water. Discharges to a stream obviously influence quality. It is one of nature's jokes on man that the time when stream flows are naturally lowest is the time when depletions are greatest and the stream is least able to assimilate the pollutants which man discharges to the stream.

An example of this irony is irrigated agriculture. It is during summer low flows that the farmer needs water on the crops and stream ecology is most susceptible to stress. Diversions at this time deplete the stream ability to absorb wastes and moderate temperature changes. Irrigation return flows carry additional TDS to the stream, further reducing quality. Municipalities also increase diversions during low flow months.

There is no question that irrigation is one of many beneficial uses of water. That using water often results in water quality degradation is a fact of life. Degradation is only a problem when it is severe enough to imperil the uses to which the water is being put.

In drainages such as the Powder, Poplar, and Redwater TDS concentrations become high enough by mid summer that irrigators should and sometimes do stop irrigating. Experience has shown them that to continue irrigation with high TDS will "sour" the land.



The role of government is to see that sufficient flows are maintained and that discharges are adequately treated to maintain the quality of the water so that the uses are not endangered. At the same time a balance must be struck to allow the use of water to grow food, assimilate waste and produce goods.

How government got into this business is basically an economic question.

## B.Economic Considerations

The optimal use of resources occurs in a system of pure competition. Unfortunately this theoretical ideal is rarely achieved by real markets. Most markets in the United States are characterized by some degree of competition, however there are instances of market failure which provide the need for collective or government action to correct the problem.

Externalities are a form of market failure which necessitate state laws governing water quality and quantity. An externality is an action taken by a private individual which imposes a cost or provides a benefit to another person; however, neither the person who suffers the cost nor the person who provides the benefit are compensated. An example of an externality which causes a cost to an individual would be the farmer who suffers a loss because production decreases due to poor water quality caused by upstream water users. On the other hand leaving water in a stream or river can provide a benefit to recreators, wildlife enthusiasts, and downstream appropriators. Fish and wildlife habitat are enhanced, aesthetic appeal is increased, and water quality can be upgraded. All these benefits are an example of a positive externality. But even though benefits accrue from instream flows there is no way a person can express his willingness to pay for other persons to not

divert water. If an appropriator desired to leave extra water in a stream there is no market where he could receive compensation for the benefit provided to other persons or for the loss he might sustain by not exercising his full water right.

A second market failure which is addressed by state control of water quantity and quality is that of public goods. These goods are characterized by the fact that if they are provided for the benefit of one person they are automatically available to all persons. Market incentives fail to provide these goods or provide them in insufficient quantities.

An example of a public good is water quality. If a person desires better water quality and pays for water treatment, the higher quality water is available to all persons. If all persons desire better water quality which is to be financed by taxation rather than charging for use of the resource, then there is an incentive for those who will use the improved water to under or overstate their true willingness to pay for improved water quality. Without a market mechanism to gauge persons' valuation of water quality, the government can provide too much or too little of the good.

Because of the externalities in water use and the public good nature of some uses of water, the state has passed water quality and quantity legislation. If the private market functioned ideally, without exhibiting these two market failures, state control of quantity-quality issues would not be needed.

### III. LEGAL FRAMEWORK

#### A. DNRC - STATE WATER PLAN



The Federal Water Resources Planning Act, PL. 89-80 was passed in 1965.

The statement of policy said: ". . . it is hereby declared to be the policy of the Congress to encourage the conservation, development, and utilization of water and related land resources of the United States on a comprehensive and coordinated basis by the Federal Government, States, localities, and private enterprise with the cooperation of all affected Federal agencies, States, local governments, individuals, corporations, business enterprises, and other concerned." (Section 2).

The legislation established a Water Resources Council which was to maintain a continuing study of the nation's water resources and needs, assess the adequacy of administrative and statutory means for the coordination of water and related land policies and programs of the federal agencies and establish Principles and Standards to be used in planning of Federal water and land related resource projects.

The law also provided for the establishment of river basin commissions to coordinate planning on a multi-state level. Finally the law provided for federal funding of state water planning efforts that met the objectives of the Federal Water Resources Planning Act.

The Montana Water Resources Act of 1967 was written to establish a water planning program which would qualify for federal Title III funding under the Federal Water Resource Planning Act. The state law identified the DNRC as the state agency to be responsible for a water planning program and described a state water planning program that is similar to the one envisioned by the federal law, i.e. a comprehensive, coordinated plan that considers all relevant federal agencies.

The Act directed the Department of Natural Resources and Conservation to:

(1) "gather from any source reliable information relating to Montana's water resources, and prepare therefrom a continuing comprehensive inventory of the water resources of the state."

(2) "Formulate and with the approval of the Board of Natural Resources and Conservation, adopt, and from time to time amend, extend or add to, a comprehensive co-ordinated, multiple-use water resources plan, known as the "state water plan."

(3) "Submit to each general session of the legislature the state water plan or any . . . additions or revisions which the department has formulated and adopted."

(4) "Prepare a continuing inventory of the ground water resources of the state."

#### B. DNRC - WATER RIGHTS

Unlike water quality and water planning, water rights law is not modeled after federal statutes. The basis for most water rights activities is the 1973 Montana Water Use Act. The Water Use Act completely overhauled the administrative procedures involved with appropriation and adjudication of the states waters. Perhaps most significantly the legislation mandates DNRC to institute a permit system for all new water appropriations. The Department is directed to issue permits for new appropriations if certain Criteria of Issuance are met:

(1) There are unappropriated water in the source of supply,

(a) at times when the water can be put to the use proposed by the applicant,

(b) in the amount the applicant seeks to appropriate, and

(c) throughout the period during which the applicant seeks to appropriate, the amount requested is available.

(2) The rights of prior appropriators will not be adversely affected,

(3) The proposed means of diversion or construction are adequate,

(4) The proposed use of water is a beneficial use, according to the Montana Water Use Act: "Beneficial use means a use of water for the benefit of the appropriator, other persons, or the public, including but not limited to, agricultural (including stock water), domestic, fish and wildlife, industrial, irrigation, mining, municipal power, and recreational uses. . ."

(5) The proposed use will not interfere unreasonably with other planned uses or developments for which a permit has been issued or for which water has been reserved, and

(6) An applicant for an appropriation of 10,000 acre-feet a year or more, or 15 cubic feet per second or more, proves by clear and convincing evidence that the rights of a prior appropriator will not be adversely affected.

For anyone contemplating construction of a new surface water diversion or impoundment, or a water well with an anticipated beneficial use of more than 100 gallons per minute, a Permit to Appropriate Water must be applied for and received before construction is begun or water is diverted.

A person wishing to secure a Permit to Appropriate Water must then fill out certain application forms in order to facilitate DNRC review.

Upon receiving the properly completed form and fee, the department will make a preliminary assessment of the application, to determine if there could be any adverse effects on existing water rights in the area. If none are indicated, a formal public notification process may be waived, and the Permit to Appropriate water is granted.

If it appears from information on the application that potential adverse effects to other water users may exist, the department must publish formal notice of the application in the local newspapers. In addition, the department examines its records and mails notification to any known individual water users in the areas who might be affected. Local water users who may be affected then have an opportunity to file an objection to the application with the department within a specified time.

The Montana Water Use Act also allows governmental entities to reserve waters. The reservation may be for existing or future beneficial uses or to maintain a minimum flow, level, or quality of water. The agency must make application to the Board of Natural Resources and Conservation (BNRC) for the requested reservation. The application must show:

(1) The purpose of the reservation. The beneficial use or uses to which the reserved water will be applied shall be indicated.

(2) The need for the reservation. The applicant shall describe why a water right by permit will not meet the needs of the applicant.

(a) If the water involves consumptive uses, the applicant shall explain why it cannot construct the necessary facilities to divert, convey and use the water in the near future, and how that situation may change to allow that construction.

(b) If the application is for instream uses, such as fish and wildlife, recreation, water quality, or protection of existing rights, the applicant shall document why the requested level or minimum flow of water should be protected from depletion. This documentation shall include the environmental benefits and detriments of maintaining the minimum flow, as well as the environmental effects of not maintaining a minimum flow, level or quality of water.

(3) The amount of water necessary for the purpose of the reservation.

(4) That the reservation is in the public interest. The applicant shall explain the public benefits which will occur from the reservation. These benefits shall be related to economic and environmental beneficial and adverse effects, and should refer to any state and federal legislation or policies that support the particular proposed beneficial use.

C. DHES - Water Quality



The body of law which culminates in present water quality statutes has a long and interesting history dating back to the 1899 Rivers and Harbors Act. By design Montana's water quality law today mirrors the federal legislation. This has been done to allow the state to assume control of programs created by federal law. Virtually every program described below can be found in public law 92-500, the Federal Water Pollution Control Act, or the 1977 Amendments to 92-500 known as the Clean Water Act.

The objective of this body of law is to restore and maintain the chemical, physical and biological integrity of the nation's and Montana's water. To achieve this objective a number of goals were declared:

1. The discharge of pollutants into navigable waters will be eliminated by 1985;
2. An interim goal of water quality which provides for recreation in and on the water will be achieved by 1983; and
3. It is the national policy that areawide water treatment management processes will be developed and implemented to assure adequate control of sources of pollutants in each state.

In order to achieve these goals the law defines 2 types of water pollution, point source and non-point source, and describes the approaches to be taken in controlling both types of pollution. The Montana Water Quality Act defines point source pollution as any discernible, confined or discrete conveyance from which pollutants are or may be discharged. The strategy by which these sources are to be controlled includes a number of tools:

1. Montana Pollutant Discharge Elimination System (MPDES) - The owner or operator of any point source discharging pollutants into state waters must obtain a MPDES permit. The Department of Health and Environmental Science - Water Quality Bureau (WQB) issues a permit based upon whether the treatment proposed will meet certain effluent standards, standards of performance and water quality standards adopted by the Board of Health and Environmental Sciences.

2. Effluent Standards - Restrictions or prohibitions on quantities, rates and concentrations of chemical, physical, biological and other constituents which are discharged into state waters.

3. Standards of Performance - Board adopted standards for the control of the discharge of effluents which reflects the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives including, where practicable, a standard permitting no discharge of pollutants.

4. Water Quality Standards - Board established classification of all waters in accordance with their present and future most beneficial uses. The standards are defined by standards of water purity based upon the most beneficial use of the stream, giving consideration to the economics of water treatment and prevention.

In addition to providing for MPDES and the criteria by which permits to discharge point sources of pollution are controlled, the law speaks to the development of treatment facilities needed to control point sources of

pollution. The water quality plan must identify the treatment works necessary to meet the anticipated municipal and industrial water treatment needs of the state over a 20 year period. The plan must also include a program to provide the necessary financial arrangements for such facilities; and identify those agencies necessary to construct, operate and maintain the facilities.

Non point sources of pollution are generally more diffuse in origin than are point sources, examples include irrigation return flows, acid mine drainage and run off from logged areas and construction sites. The Clean Water Act states that the water quality management plan must identify, if appropriate, agricultural, silvicultural, mine, construction, residual waste and other related nonpoint sources of pollution and set forth procedures and methods (including land use requirements) to control to the extent feasible such sources. To help ease the potential financial burden incurred by private landowners in complying with this section the law creates a rural land owner financial assistance program.

It is important to this discussion to understand the relationship between 3 terms used in water quality law. (1) Pollution means contamination or alteration of the physical, chemical or biological properties of state waters which exceeds that permitted by the Montana Water Quality Standards. Thus the discharge of pollutants is not considered pollution until it results in a violation of the Water Quality Standards. The definition goes on to say that a discharge . . . which is authorized under the pollution discharge permit rules is not pollution under this chapter.

(2) Naturally occurring is defined as conditions or material present from run off or percolation over which man has no control or from developed land

where all reasonable land, soil and water conservation practices have been applied.

(3) The Board of Health and Environmental Sciences has adopted a nondegradation policy which says that any state water whose quality is higher than the established water quality standards must be maintained at that high quality unless it has been demonstrated that the change is justifiable due to necessary economic or social development. Any development which would constitute a new or increased source of pollution to high quality waters referred to above must provide the degree of waste treatment necessary to maintain the existing high water quality.

Each of these terms allows the discharge of pollutants if the necessary treatment to maintain water quality is provided.

#### IV. PLANNING

##### A. DNRC - State Water Plan

The Level B study as described in the Federal Water Resources Planning Act has served as the focus of Montana water planning efforts to date. The strategy has been to utilize federal grant funds and federal technical expertise to cooperatively develop plans for each of Montana's major basins. Upon completion each drainage basin plan was to be adopted by the legislature as a component of the state water plan. This approach was taken because of the grant funds available and the similarity in goals of the Level B study as described in federal legislation and the state water plan as described in Montana's 1967 Water Planning Act.



Three Level B studies have subsequently been undertaken in Montana, the Flathead, Yellowstone and Missouri. The Flathead Level B was adopted by the state legislature as the beginning of a state water plan. The Yellowstone Level B was superceded by the Yellowstone Reservations. The Missouri Level B is presently being completed. The Flathead Level B will be used as an example of a Level B product.

Funding for the Level B studies is provided in large part by the federal government via Water Resources Council and the appropriate river basin Commission. This money is distributed among the federal agencies which participate in the study to compensate them for their time. The state share of the cost of the study is provided through in kind services - time spent by individuals working on the study, travel costs, etc.

A number of state and federal agencies participate in Level B studies. Multi-agency work groups are formed to review various aspects of water and related land resource issues such as irrigation, flood control, water quality etc. Out of this review a number of problems begin to emerge such as, How do we maintain water quality with increased depletions and return flows? The work groups must identify a number of alternative solutions to these problems. According to the Principles and Standards each alternative must be evaluated for its impact on National Economic Development (NED), Regional Development (RD), Environmental Quality (EQ) and Social Well Being (SWB). The four items are termed accounts in the P & S jargon. These accounts define the attributes and disattributes of a particular alternative.

Using the list of alternatives virtually an infinite number of plans could be developed. The P & S describes an orderly manner for developing 4



alternative plans. The NED plan is composed of those elements for which the direct benefits from nationally needed production made possible by the element exceed the total identifiable, but not necessarily quantifiable environmental, social or other benefits that are deemed to be in excess of the environmental, social and economic costs. To qualify for the RD plan an element must be ineligible for inclusion in the optimized NED or emphasized EQ plan; it must be funded 100% nonfederally and its total benefits must be in excess of total economic costs.

For each plan there is a complete display or accounting of beneficial and adverse effects. Utilizing the 3 plans discussed above and the results of their public relations efforts the management board adopts a plan that is balance between the 3 plans and reflects the goals and desires of the citizenry of the basin.

Public participation efforts have accompanied each of the Level B studies. These generally include formation of citizen advisory groups which reflect a broad range of interests within the basin. The advisory groups are kept aware of study progress and given ample opportunity to comment. In addition the management board holds public hearings to explain the planning process, to discuss controversial plan elements and to receive comments on the plans.

In addition to Level B studies the water planning activities of the DNRC have included analysis of the applications to reserve waters of the Yellowstone River. The Planning Bureau was responsible not only for analysis of the applications but also for preparation of the Old West Regional Commission Yellowstone Study and the Yellowstone Environmental Impact Statement.

## B. DNRC - Water Rights

There is no planning done in conjunction with the issuance of water rights. Issuing permits is an administrative process. Once the application for a water right has been received it is reviewed for completeness, an analysis is made to determine the likelihood that existing rights may be adversely affected and the issuance of the permit from this point on is an administrative proceeding.

The Department does have an obligation to prepare an EIS if issuing a permit could result in a significant environmental impact. The Montana Water Use Act makes it clear that the Department must issue a permit to appropriate water if the criteria of issuance are met. Should the criteria be met but an EIS show a significant environmental impact the course the DNRC would take is not clear. An attempt might be made to condition or deny the permit to alleviate the impacts.

## C. DHES - Water Quality Planning

This discussion will be divided into two parts, planning related to point source and planning related to nonpoint source pollution. Development of performance standards, water quality standards and a priority list of construction activities are the main planning activities associated with point source pollution control.

The preamble to the Montana Surface Water Quality Standards states "The Board adopts the policy that treatment and control of wastes, activities and flows must be provided to maintain and improve water quality to the highest

practicable levels." As noted above the WQB was charged with classifying each stream according to its present and future most beneficial uses. The WQB determined to do the classification according to the existing uses of the stream. A stream could be placed in any of a number of classifications depending upon the existing use. For instance any water classified A - closed must be maintained suitable for drinking, culinary and food processing purposes after simple disinfection. Waters classified C-3 must be maintained suitable for bathing, swimming and recreation; growth and propagation of non-salmonid fishes and associated aquatic life, water fowl and furbearers; and agricultural and industrial water supply. Each classification is further defined by a number of specific standards related to such things as number of coliform bacteria, dissolved oxygen, temperature, pH, sediment and total dissolved solids (TDS). In evaluating an application for an MPDES permit, if it appears that the effluent standards in the National Secondary Treatment Standards could result in a violation of the water quality standards of the receiving water, then the appropriate water quality standards will be used to condition the MPDES permit.

Since the water quality standards were adopted a few streams have been reclassified because of improved water quality, the prime example being the Clark Fork. However, because the objective of the law is to improve or maintain the quality of the state's water, it is illegal to downgrade a stream's classification unless it was misclassified originally.

The Standards of Performance- The Standards of Performance were developed at the federal level on an industry by industry basis. They describe the levels of particular pollutants that a given industry can discharge and the treatment techniques available for meeting the discharge requirement. The

Standards of Performance are published in the Federal Register. They were adopted by the State of Montana with the caveat that if meeting the Standards of Performance would result in a violation of a stream classification then the Standards of Performance are waived and the discharge must meet the criteria of the stream classification.

The development of a priority listing of towns requiring new or upgraded sewage treatment facilities is based upon 4 criteria:

1. Receiving Stream Designation - This designation is based upon whether or not the stream is meeting its classification and if not whether the cause is point or non-point source pollution.

2. Water Use Classification of Receiving Stream - This is taken from the water quality standards.

3. Population served by the existing or proposed project.

4. Scope of Project in Abating Pollution - This is basically the threat to public health posed by the existing situation and the extent to which a project would correct the problem.

When a community reaches the top of the priorities listing the WQB makes a grant to the community to retain a consultant to complete a facility plan. The ensuing process will be described under the management heading.

The non-point source control program in Montana is voluntary in nature. The reasons for this are basically political-economic. The general feeling is



that agricultural, silvicultural and mining interests simply would not accept a regulatory program at this time. Another reason offered is that while industry and municipalities can pass the cost of treatment along to the consumer, this is not true of the farmer.

Given the voluntary nature of the program it is important to involve the affected groups in the planning process. The planning process begins with an identification of the existing non-point source water pollution problems. The WQB has attempted to have this inventory conducted by the affected group or at least to have their involvement. For instance the WQB had a contract with the Montana Association of Conservation Districts to identify agriculturally related non-point problems. Similar contracts were made with other affected groups such as the Forest Service.

When the problems are identified - erosion, irrigation return flows, logging roads,- alternative solutions can be discussed. The alternatives are generally management practices which will result in minimizing the problems. Examples might be changing from flood to sprinkler irrigation, sedimentation ponds, cable logging on steep slopes, etc. Management practice's are the focus because treatment of non-point source pollution is impractical, given its diffuse nature. The goal is to utilize management that will not cause the problem. The key is to find management practices which do the job without causing the farmer, logger, or miner undue hardship. These management practices are termed Best Management Practices (BMP). They are usually developed through a long process of give and take between the water quality agency and the affected groups.



The final part of the planning process is identifying the entity best able and suited to carry out a continuous planning process of prioritizing water quality problems, refining BMP's and of working with individuals to make them aware of the problems, of the solutions available and of the financial and technical assistance available to them. In Montana the conservation districts were felt to fill this bill on private agricultural and forested lands. The Forest Service was tabbed as the most likely agency on national forest lands.

## V. MANAGEMENT

### A. DNRC - State Water Plan

The DNRC does not have a management program whose goal is implementation of the state water plan. Implementation of the state water plan, which currently consists of the Flathead Level B study, is dependent upon the initiative of individual agencies. For instance the Flathead Level B makes the following recommendations:

1. Development of Buffalo Rapids 2 & 4 hydropower sites
2. Stabilization of Whitefish Lake
3. Zoning around several water quality sensitive lakes

These would have been implemented by the Corps of Engineers, an elected Board of Directors, and the Flathead County Commissioners respectively.

As mentioned earlier the water planning bureau played a significant role in the analysis of applications and development of the EIS recommendations to the Board of Natural Resources on applications to reserve waters of the Yellowstone River. The reservations granted by the Board effectively determined to a large extent water use in the Yellowstone for some time to come as such it will serve as an implemented state water plan for the Yellowstone Basin.

## B. WATER RIGHTS

The Criteria of Issuance described earlier are the basis for DNRC's water rights management program. The program is basically one of evaluating applications in light of the criteria and issuing, denying or modifying the permit sought.

The DNRC tries to provide enforcement of conditions placed on water rights as it is needed. The Department is understaffed to do much enforcement activity.

## C. DHES

The primary tool in the management of point source pollution is the MPDES permit program. How this program works has been described previously in the legal and planning sections. Enforcement of permit conditions and water quality standards is an important aspect of water quality management and the MPDES program. The WQB has taken enforcement action against community and industrial discharges for violating conditions of their permits and also for discharges made without a permit that resulted in violations of the water

quality standards. No attempt has ever been made to take enforcement action on a violation of water quality standards stemming from non-point pollution such as irrigation return flows.

There is no documented case where the water quality standards constrained resource development. By the same token DHES has never taken enforcement action against a diverter for a water quality violation. If DHES pursued enforcement actions against diverters then resource development could be constrained.

The second facet, implementation of the priority listing for needed sewage treatment facilities is handled by the Construction Grants branch of the WQB. Construction Grants provides the communities at the top of the priority listing with funds to retain consultant to develop a facilities plan. The facility plan must document the existing water quality problem, display a number of alternative treatment schemes to deal with the problem, and describe what the facility would cost to build and maintain and how it would be financed. When the community, consultant and state have reached agreement on the facility to be constructed, Construction Grants makes a partial grant to the community to retain a consultant to develop detailed plans and specifications for the facility. The final step is construction which Construction Grants will fund up to 85%, the community must finance the remainder.

The management program to control non-point sources of pollution focuses on the development of management agreements as a method to implement the water quality management plans. The water quality agency enters into negotiations with that entity identified in the plan as the best suited to implement that

portion of the plan. The product of the negotiations should be a management agreement which gives much of the responsibility for implementing the plan to the management agency and outlines what support and tasks the water quality agency will provide.

As an example management agreements between the WQB and conservation districts generally contain the following kinds of provisions:

- DHES shall provide upon request technical assistance to the C.D. in the development of a water quality management plan
- DHES shall assist in obtaining financial support for the C.D. for the development and implementation of a water quality management plan
- DHES shall cooperate with the C.D. in documenting non-point source problems
- DHES shall work cooperatively in providing education, information and other assistance to the C.D.
- The C.D. shall prepare, with the assistance of DNRC and DHES, a master water quality management plan for the area within the C.D.'s boundaries.

#### IV. ANALYSIS

The integration of water quantity and quality is important to the people of Montana. Diverted water that is put to beneficial use is central to Montana's economy. Montanan's have always placed a high value on clean water. The state is famous for its water based recreation, that recognition

contributes substantially to the state's economy. To achieve a balance between putting water to use and protecting water quality it is necessary to integrate water quality/quantity planning and management.

To this point we have reviewed the laws which established the water quality and quantity planning and management programs in the state. We have reviewed how these laws are being implemented by DHES and DNR respectively. At this point we must focus on those items which are central to the integration of water quality-quantity management.

The planning and management programs of the DNRC are unrelated. The recommendations contained in the Level B studies are very general, are not accompanied by implementation schemes and do not provide guidance on the issuance of water rights. The administration of water rights displays the opposite characteristics - it deals with very specific applications for water, the basis for evaluating those applications is clearly delineated and state water plans have no bearing on the issuance of permits. This lack of coordination is due to the fact that the two programs were established by separate pieces of legislation having different objectives.

The water quality planning and management activities of DHES were established by the same legislation. The goal of the legislation is quite specific - to maintain and improve water quality. The planning and management programs are directly related. For purposes of discussion in this paper the line between planning and management has been somewhat arbitrarily drawn - this is especially true of the non-point discussion.



In order to integrate quantity and quality on the ground where it matters there are four programs that should be coordinated in the state bureaucracy. Of those four only two presently are related, water quality planning and management.

The integration of water quality planning and the state water plan does not face any sort of obvious legal problems. Institutional problems could be significant. Perhaps the biggest stumbling block would be each Department's notion of how the other is adversely affecting its programs.

Traditionally DNRC has supported the growth of irrigated agriculture. The Water Quality Standards would seriously constrain irrigated agriculture in some drainages. There are drainages which have been misclassified such that the standards prescribed are not met in the naturally occurring situation. This in itself is not a constraint because as long as irrigators utilize best management practices their discharges are not considered polluting (see discussion of DHES legal mandates). However the act of diverting could reduce the assimilative capacity of the stream resulting in Water Quality Standards violations from previously existing discharges. The misclassification indicated to DNRC that DHES was being over zealous in their efforts to maintain water quality and that the Water Quality Standards posed a constraint to reasonable resource development. Consequently DNRC has viewed the Standards with skepticism. The proposed revision of the Water Quality Standards attempts to correct the earlier misclassification.

On the other hand both agencies realize that DNRC's issuance of permits without regard for the Water Quality Standards or BMP's can result in violations of the Standards. As the Standards are a keystone in water quality

planning and management DNRC's actions are a treat to DHES mandate to maintain and improve the quality of the state's waters. Before there can be any integration of programs, these attitudes must be dealt with. Given the broad planning mandate of DNRC it seems that the water quality plan could be incorporated into the state water plan if institutional barriers could be bridged.

Unlike the planning programs there are legal conflicts between the management programs. That conflict in its simplest terms seems to be between the Water Quality Standards and the Criteria of Issuance. The DNRC is mandated to issue water right permits if the criteria of issuance are met. It is possible that depletions allowed by water rights could result in violations of the Water Quality Standards. If the standard is reasonable then the violation is a threat to the beneficial use of the water and of concern to people "on the ground". If the standards are not reasonable then an unwarranted constraint is being placed upon development of the resource. Any option considered below which would include enforcement of the water quality standards assumes that the standards are reasonable. The DNRC will not make that assumption at this time.

1. The two agencies should better understand each others legal mandates and programs. Some of the institutional barriers to integrating water quality/quantity result from conclusions drawn based upon an incomplete or inaccurate understanding of programs. At the very least the agencies should understand the role that each plays.
2. DHES could involve DNRC in the development of the water quality standards. As noted earlier the DNRC views the standards as being too restrictive in some

cases and too general in others. It is difficult to comment upon the Standards without a understanding of how they are developed. Clearly DHES must assume final responsibility for the Standards, permitting other entities a role in their development should result in them being more generally accepted and acceptable.

3. The Standards could be included as part of the state water plan. An attempt could be made to have the criteria of issuance changed to require that the issuance of water rights be in accord with the state water plan. This would result in better coordination of DNRC's planning and management efforts as well as integrating DHES and DNRC management programs. The likelihood of the legislature so changing the criteria of issuance seems slim.

4. The criteria of issuance could be changed in a number of ways.

a. A public interest criterion could be added. Such a criterion is found in the laws of many western states. It would allow the denial or conditioning of a permit application which would not be in the public interest according to specific criteria. Applications for water which would result in violation of reasonable water quality standards could be denied under the public interest criterion.

b. The criteria could be amended to include a clause requiring certification by DHES that the water right would not result in a violation of the water quality standards. This would require the DHES to make this determination on each application made to DNRC. This could be a significant effort.

c. The criteria could be amended to include a clause stating that the issuance of the permit must not result in a violation of the water quality standards. This would place the burden on the DNRC to determine whether the permit would result in a violation.

5. The present criteria include the clause "the rights of prior appropriators will not be adversely affected." The DNRC could interpret this to mean that the rights of prior appropriators include quality as well as quantity. Thus if a permit would result in an adverse affect upon a prior appropriator, the application could be denied.

6. The DNRC could condition permits which could concievably result in violations of the Standards by saying that the exercise of the rights must not cause a violation of the Standards. This would allow the DNRC to bring enforcement action against that permit if in fact it could prove that that particular right was responsible for the violation.

7. DHES could determine those streams, rivers and lakes in greatest need of protection from diversions and actively pursue reservations of water in those water bodies. This avenue requires no new legislation and DHES has an excellent track record with reservations.

8. The legislature could establish a mechanism whereby the Boards of the two agencies could jointly declare and establish controlled water quality streams. This would be streams identified by the agencies as needing protection because of water quality degradation. As part of the designation the development of a management plan for the river could be prepared by the two agencies.





